

Customer No.:31561
Application No.:10/711,679
Docket No.:13838-US-PA

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

Claim 1 (currently amended) A white LED device, comprising:

a first LED die, capable of emitting a first color light, the first LED die having a first electrode and a second electrode;

a second LED die, capable of emitting a second color light, the ~~[[first]]~~ second LED die having a first electrode and a second electrode; and

a phosphor layer disposed on at least one of the first and second LED dies, capable of emitting a third color light when stimulated by the first or second color light;

an electrode connection structure, electrically connected with electrodes of the first and second LED dies for providing electricity to the first and second LED dies, wherein the first electrode of the first LED die and the first electrode of the second LED die are electrically connected through a first electrode frame, and the second electrode of the first LED die and the second electrode of the second LED die are electrically connected through a second electrode frame, and the electrode connection structure comprises a packaging substrate defining a groove configured for receiving the first and second LED dies therein;
and

a light mixing structure, capable of mixing the first to third color lights to produce white light, the light mixing structure comprising a transparent packaging layer which

Customer No.:31561
Application No.:10/711,679
Docket No.:13838-US-PA

comprises a first transparent material layer filled in the groove and enclosing the first LED die, the second LED die and the phosphor layer, and a second transparent material layer disposed on the first transparent material layer, wherein the first to third color lights are mixed through a lens effect of the transparent packaging layer.

Claim 2. (canceled)

Claim 3. (currently amended) The white LED device according to claim [[2]] 1, wherein ~~the electrode connection structure includes a~~ the packaging substrate ~~that have~~ has pins electrically connected with the electrodes of the first and second LED dies.

Claim 4. (currently amended) The white LED device according to claim 3, wherein ~~the packaging substrate has a groove therein;~~
~~the first and second LED dies are disposed in the groove;~~
~~the transparent packaging layer fills the groove; and~~
the pins comprise:
a first pin extending into the groove, the first pin having an end electrically connected with the first electrode of the first LED die and the first electrode of the second LED die; and
a second pin, having an end electrically connected with the second electrode of the first

Customer No.:31561
Application No.:10/711,679
Docket No.:13838-US-PA

LED die and the second electrode of the second LED die through wire bonding.

Claim 5. (currently amended) The white LED device according to claim ~~[[4]]~~ 1,
wherein the
first transparent material layer is made of transparent resin and the second transparent
material layer is made of transparent glass ~~the transparent packaging layer comprises:~~
~~a transparent resin filled in the groove; and~~
~~a transparent glass layer disposed on the transparent resin.~~

Claims 6-8 (canceled)

Claim 9. (previously presented) The white LED device according to claim 1, wherein
the
first LED die comprises a blue LED die, the second LED die comprises a green LED die, and
the phosphor layer comprises a red phosphor.

Claim 10. (currently amended) The white LED device according to claim ~~[[8]]~~ 9,
wherein the phosphor layer is disposed merely on the blue LED die.

Customer No.:31561
Application No.:10/711,679
Docket No.:13838-US-PA

Claim 11. (currently amended) The white LED device according to claim [[8]] 9, wherein the phosphor layer is disposed merely on the green LED die.

Claim 12. (currently amended) The white LED device according to claim [[8]] 9, wherein the phosphor layer is disposed on each of the blue LED die and the green LED die.

Claim 13. (currently amended) The white LED device according to claim [[8]] 9, wherein the phosphor layer includes a red phosphor selected from the group consisting of $\text{Sr}_2\text{Si}_5\text{N}_8:\text{Eu}^{2+}$, $\text{SrS}:\text{Eu}^{2+}$, $\text{CaS}:\text{Eu}^{2+}$ and combinations thereof.

Claim 14 (new) The white LED device according to claim 1, wherein the phosphor layer contacts one of the first and second electrodes of the at least one of the first and second LED dies.

Claim 15 (new) A white LED device, comprising:
a first LED die, capable of emitting a first color light, the first LED die having a first electrode and a second electrode;
a second LED die, capable of emitting a second color light, the second LED die having a first electrode and a second electrode;
a phosphor layer disposed on at least one of the first and second LED dies, capable of emitting a third color light when stimulated by the first or second color light;

Customer No.:31561
Application No.:10/711,679
Docket No.:13838-US-PA

an electrode connection structure, electrically connected with the electrodes of the first and second LED dies for providing electricity to the first and second LED dies, wherein the first electrode of the first LED die and the first electrode of the second LED die are electrically connected through a first electrode frame, the second electrode of the first LED die and the second electrode of the second LED die are electrically connected through a second electrode frame, and the first electrode frame defines a groove configured for receiving the first and second LED dies therein; and

a light mixing structure, capable of mixing the first to third color lights to produce white light, the light mixing structure comprising a transparent packaging layer which comprises a first transparent material layer filled in the groove and enclosing the first LED die, the second LED die and the phosphor layer, and a second transparent material layer disposed on the first transparent material layer, wherein the first to third color lights are mixed through a lens effect of the transparent packaging layer.

Claim 16 (new) The white LED device according to claim 15, wherein the first transparent material layer is made of transparent resin and the second transparent material layer is made of transparent glass.

Claim 17 (new) The white LED device according to claim 16, wherein the phosphor layer contacts one of the first and second electrodes of the at least one of the first and second LED dies.